

Listing of the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1-149 (cancelled).

150 (previously presented): A prosthetic cardiac valve assembly comprising:

- a) a replacement valve comprising:
 - a plurality of leaflets configured to permit blood to selectively flow therethrough; and
 - a plurality of commissure points from which the replacement valve is suspended;
- b) a valve support connected to the replacement valve and configured to be collapsible for trans luminal delivery,
 - said valve support having an axial length sufficient to extend, when implanted, from a position of a native annulus, past the replacement valve, past the commissure points, and past the patient's coronary ostia, and into an ascending aorta;
 - wherein outer circumference of the valve support varies along at least some portions of the axial length;
 - wherein the valve support further comprises:
 - a first section terminating in a first end, said first end comprising an outer circumference having a first diameter, said first section configured to engage the native annulus; and
 - a second section terminating in a second end, said second end comprising an outer circumference having a second diameter, said second section configured to extend past the coronary ostia and into the ascending aorta,
 - wherein the second circumference is greater than the first circumference.

151 (previously presented): The prosthetic cardiac valve assembly of claim 150, wherein said first section comprises a plurality of intersecting members forming a plurality of cells, said cells having a first cross-sectional size and arranged substantially uniformly around a periphery of the valve support;

wherein the second section comprises a plurality of intersecting members forming a plurality of cells, said cells having a second cross-sectional size and arranged substantially uniformly around a periphery of the valve support; and

wherein the second cross-sectional size is greater than the first cross-sectional size.

152 (previously presented): The prosthetic cardiac valve assembly of claim 151, wherein the cells at the first and second sections comprise a diamond shape.

153 (previously presented): The prosthetic cardiac valve assembly of claim 150, wherein the valve support is self-expanding.

154 (previously presented): The prosthetic cardiac valve assembly of claim 150, wherein the valve support comprises a plurality of wires.

155 (previously presented): The prosthetic cardiac valve assembly of claim 150, wherein the valve support comprises a shape memory material.

156 (previously presented): The prosthetic cardiac valve assembly of claim 155, wherein the shape memory material comprises Nitinol.

157 (previously presented): The prosthetic cardiac valve assembly of claim 150, wherein the replacement valve is secured to the valve support using at least one suture.

158 (previously presented): The prosthetic cardiac valve assembly of claim 150, wherein the replacement valve comprises at least three leaflets.

159 (previously presented): The prosthetic cardiac valve assembly of claim 150, wherein at least a portion of the valve support is configured to apply a radial expansion force up to a predetermined diameter.

160 (previously presented): A prosthetic cardiac valve assembly comprising:

a replacement valve comprising a plurality of leaflets and a plurality of commissure points from which the replacement valve is generally suspended; and

a valve support having a proximal portion and a distal portion, said valve support connected to the replacement valve and configured to be collapsible for trans luminal delivery;

wherein the valve support is configured to extend, when implanted into a patient, from a native annulus at the proximal portion to an ascending aorta at the distal portion, past a location of the patient's coronary ostia;

wherein an outer shape of the valve support varies along an axial length of said valve support such that a cross-sectional dimension of the distal portion is generally larger than a cross-sectional dimension of the proximal portion;

wherein the valve support comprises a plurality of intersecting members forming a plurality of cells, said cells being arranged substantially uniformly around a periphery of the valve support; and

wherein the plurality of cells located along the distal portion of the valve support have a larger cross-sectional size than the plurality of cells located along the proximal portion of the valve support.

161 (previously presented): The prosthetic cardiac valve assembly of claim 160, wherein the valve support comprises a proximal end and a distal end, a cross-sectional dimension of said distal end being larger than a cross-sectional dimension of said proximal end.

162 (previously presented): The prosthetic cardiac valve assembly of claim 160, wherein the plurality of cells at the proximal and distal portions comprise a diamond shape.

163 (previously presented): The prosthetic cardiac valve assembly of claim 160, wherein the valve support is self-expanding.

164 (previously presented): The prosthetic cardiac valve assembly of claim 160, wherein the valve support comprises a plurality of wires.

165 (previously presented): The prosthetic cardiac valve assembly of claim 160, wherein the valve support comprises a shape memory material.

166 (previously presented): The prosthetic cardiac valve assembly of claim 165, wherein the shape memory material comprises Nitinol.

167 (previously presented): The prosthetic cardiac valve assembly of claim 160, wherein the replacement valve is secured to the valve support using at least one suture.

168 (previously presented): The prosthetic cardiac valve assembly of claim 160, wherein the replacement valve comprises at least three leaflets.

169 (previously presented): The prosthetic cardiac valve assembly of claim 160, wherein at least a portion of the valve support is configured to apply a radial expansion force up to a predetermined diameter.

170 (previously presented): A prosthetic cardiac valve comprising:
a) a replacement valve comprising:
a plurality of leaflets configured to permit blood to selectively flow

therethrough; and
a plurality of commissure points from which the replacement valve is suspended; and
b) a valve support connected to the replacement valve and configured to be collapsible for transluminal delivery,
wherein, when the valve support is implanted in a patient and the replacement valve is positioned in a native aortic valve annulus, said valve support is sized and shaped to extend from a position of the native annulus, past the replacement valve, the commissure points, and the patient's coronary ostia, and into an ascending aorta;
wherein outer circumference of the valve support varies along at least some portions of the axial length;
wherein the valve support further comprises:
a first section terminating in a first end, said first end comprising an outer circumference having a first diameter, said first section configured to engage the native annulus; and
a second section terminating in a second end, said second end comprising an outer circumference having a second diameter, said second section configured to extend past the coronary ostia and into the ascending aorta,
wherein the second circumference is greater than the first circumference.